What is claimed is:

1. A telecommunications apparatus, comprising:
a multi-finger Rake receiver having a serial stage and a parallel stage; and
a single bit quantizer on the serial stage.

2. The telecommunications apparatus of claim 1 in which:
parallel branches of the Rake receiver are weighted;
pulse samples from the single bit quantizer have estimated probabilities corresponding to different delays; and the weighting factors used in the Rake receiver are derived from the estimated probabilities of the corresponding pulse samples.

3. The telecommunications apparatus of claim 2 in which the weighting factors are derived from a ratio of the estimated probability of a corresponding sample at the nth delay and the estimated probability that there is not a corresponding sample at the nth delay.

4. The telecommunications apparatus of claim 1 used with on off keying encoding/modulation scheme.

5. The telecommunications apparatus of claim 1 in which the single bit quantizer uses a decision statistic summed over samples of a received signal to determine whether a symbol is present.

6. The telecommunications apparatus of claim 5 in which the decision statistic uses a sum of a constant plus a function that depends on estimated probabilities of samples of the received signal being greater or less than a threshold.

7. The telecommunications apparatus of claim 1 used with a 2-ary encoding/modulation scheme.

8. The telecommunications apparatus of claim 7 in which the single bit quantizer analyzes a weighted sum of samples from a received signal to determine whether a symbol has been received.

9. The telecommunications apparatus of claim 1 used with a M-ary encoding/modulation scheme.

10. The telecommunications apparatus of claim 9 in which the single bit quantizer determines presence of a symbol in a received signal based on a maximum weighted sum of samples of a received signal.

11. The telecommunications apparatus of claim 1 in which the single bit quantizer operates using a search bin to determine presence of a symbol in a received signal, and shifts a search bin based on the estimated probability of a corresponding sample at the nth delay.

12. The telecommunications apparatus of claim 11, in which the single bit quantizer uses a clock synchronizing scheme using metrics with a set of tracking rules, where the metrics are based on a sum of magnitudes of a set of samples of the estimated probability of a corresponding sample at the nth delay.

13. The telecommunications apparatus of claim 12 in which the tracking rules are:

If $Q_{sL}>Q_{sH}$ then the search bin is shifted to the left, corresponding to decreased delay;

If $Q_{sL}<Q_{sH}$ then the search bin is shifted to the right, corresponding to increased delay;

If $Q_{sL}=Q_{sH}$ then the search bin is not shifted; and

If $Q_s<$ a constant threshold then tracking is considered lost, and the single bit quantizer chooses between extending the search, reacquisition of a signal or repeating a search; and in which Q_{sL} is based on the sum across a first portion of the set of samples, and Q_{sH} is based on the sum across a second portion of the set of samples, and Q_s is the sum across both portions of the set of samples.

14. The telecommunications apparatus of claim 1 in which pilot tracking data used for deciding whether a sample represents a symbol 1 or not is used with decision feedback data samples from samples of a received signal.

15. The telecommunications apparatus of claim 1 in which the receiver uses a single bit quantized pilot signal to estimate propagation channel characteristics, whereby weighting coefficients may be derived for the Rake receiver by operating on received data samples.